Interventions

The statements made in this section are based solely on review of the published literature, discussion by the Pediatric Asthma Committee, and comments received from attendees at the conference, *Pediatric Asthma: Promoting Best Practice – Raising the National Standard of Care for Children with Asthma,* held May 2-3, 1998 in Washington, D.C.

Interventions

Interventions to Improve Health Care for Children with Asthma

Childhood is a special time of life – a time of cognitive, social, emotional, and physical growth. These developmental changes can significantly affect the health of the child. For this reason, children merit a separate focus in health services. Ignoring how health care for children differs from that for adults is shortsighted and ultimately may be costly.

Children who have a chronic illness, such as children with asthma, are large users of costly health services, particularly, emergency room and hospital services. There is evidence that hospitalizations and emergency room visits for asthma can be avoided with appropriate preventive and primary care. In other words, an initial investment into preventive treatment, education for asthma, and programs targeted to children who use hospital services frequently may ultimately save health care dollars due to reductions in emergency room visits and hospital stays.

We need more answers. At this time, there are relatively few measures to assess the quality and outcomes of health care provided for children with asthma. To improve the management of these children, specific interventions are needed and their outcomes should be monitored carefully.

According to the American Academy of Pediatrics, primary care is:

- Accessible and affordable.
- First contact.
- Continuous and comprehensive.
- Coordinated to meet the health needs of the child and family.

Am Acad Pediatr News 1993; 9:7

Considerations for Interventions for Children with Asthma

1. The appropriate outcomes to be measured may differ according to the stage of development (e.g., infancy, early childhood, late childhood, adolescence).

   Outcomes measurements for children with chronic diseases, such as asthma, are usually classified in terms of the major activity associated with their age group:

   - Infants: feeding and sleeping behavior
   - 8 months to 5 years: ordinary play
   - 5 years to 17 years: attending school

Outcome measurements in children by major activity and age group

Description	Infants	18 months – 5 years	5 – 17 years
No limitations on major activity	Feed and sleep normally	Able to play	Able to go to school
No limitations on major activity, but limited in terms of other activities	Feed and sleep normally, but may tire easily when playing	Able to play, but not for long in a cold wind	Able to go to school, but cannot participate in sports
Able to perform major activity in limited manner	May grunt when feeding, may wake up from sleeping	Able to play, but tires easily	Able to go to school, with restrictions on gym and recess
Unable to perform the major activity	Cannot feed or sleep	Cannot play	Cannot go to school

Other outcomes to be measured for children with asthma:

Determine the number of occurrences:	
Per 2-week Time Period	**Per 3-month Time Period**
• Unscheulded doctor visits • Nights with disturbed sleep • Days with slow play or excess fatigue • Days with restricted activities • School days missed • Symptom-free days	• Emergency room visits • Hospitalizations • Days without caretaker's activities interrupted or restricted

2. The outcomes measured should be assessed in relation to normal maturation. Alterations in growth and development are important specific outcomes for children with chronic diseases, including children with asthma.

- Asthma may delay or slow growth in some children.
- Some medications to treat asthma may affect growth.

3. To be acceptable, the intervention needs to be appropriate for the lifestyle of the child and family. Consider whether:

- It is culturally acceptable.
- It can be delivered in the context of the child's daily life: at home, in school, in a community facility.

4. Interventions for children with asthma should have a focus on preventive care and access to care.

- Access to primary care is important to children's well being in general, and may be essential to maintaining positive long-term outcomes for children with asthma.
- In certain situations, specialty care may be necessary for successful outcomes (see page 47).

5. Targeting high-risk patients may substantially decrease the costs of care.

- Studies have shown that approximately 20% of patients with asthma account for 80% of the costs of the disease due to high utilization of urgent care services.

To improve the care of all children with asthma, the challenges for the future are to:

- Create programs to ensure that children with asthma receive the care that they need.
- Educate policymakers, providers, school personnel, community professionals, and children's families about asthma as a chronic disease so that they understand the type of supportive services that are needed.

How can our health care system better serve children with asthma?

The following suggestions are based on discussion of the Pediatric Asthma Committee and on recommendations from individual break-out groups at the first summit meeting, *Pediatric Asthma: Promoting Best Practice*, held in Washington, D.C. in May 1998. These statements are not directives, but are offered as a helpful resource to encourage thinking about ways to improve asthma care for children.

Suggestions for Improving Resource Utilization

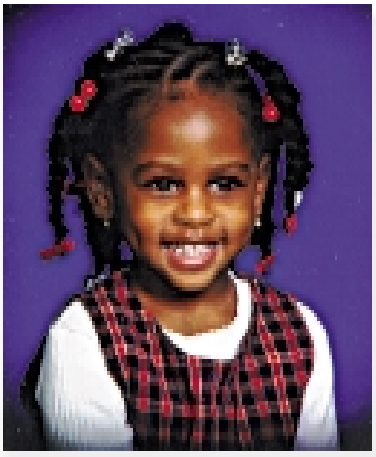
- Encourage public and private funding for implementing and researching preventive care programs that are specifically targeted to at-risk (e.g., low income, medically underserved) children with asthma and their families.
- Allocate funds for education.
- Make appropriate medications, delivery devices, environmental control aids, and peak flow meters available to children in low-income families.
- Utilize a team approach for educational efforts that is directed by a primary clinician.
- Identify local/community resources for pediatric asthma education and pharmaceutical assistance.
- Have community experts promote best practice guidelines to the public as well as to clinicians.
- Identify the most expensive users of care and develop systems to provide effective care.
- Establish a phone “hot-line” for questions regarding children with asthma.
- Consider ways to make transportation to clinic appointments possible for those in need (e.g., cab, bus, train, bus vouchers).
- Provide school nurses in every school.
- Educate school administrators about the prevalence and environmental prevention of asthma and allergies.
- Work to direct government-funded health care initiatives toward asthma (as a health care indicator).
- Reorganize clinic services to provide the necessary time for pediatric asthma care.
- Use high-profile community leaders to create an awareness of pediatric asthma and to bring about needed change.

Suggestions for Research

- Consider developing pediatric asthma research consortia to increase the power of intervention studies.
- Study interventions that encourage healthy behaviors.
- Develop and assess the effectiveness and appropriateness of different types of interventions (e.g., clinic-based, community-based, school-based, family-centered, culturally-sensitive) in promoting adherence with therapy and reducing urgent care utilization.
- Assess the role of new therapies.
- Include current and long-term costs to determine the cost-effectiveness of therapeutic and intervention strategies.
- Use longitudinal study designs (particularly those using health information systems) to examine the long-term effects of medical care and changes in the health care system.
- Develop a better understanding of how managed care affects the delivery of child asthma care.
- Track asthma drug utilization at the level of the patient and the physician.
  - ⇒ Flag patients with overuse of bronchodilators and underuse of anti-inflammatory medications.
- Develop and evaluate standardized discharge care paths for hospitalized patients. These should include:
  - ⇒ Written plans covering acute and preventive management.
  - ⇒ Patient education.
  - ⇒ Follow-up visits. The initial visit should be within 7 days of discharge with a subsequent visit at between 1 and 3 months.
- Undertake an epidemiologic study of the outcome effectiveness of school nurses in the overall management of children with asthma.
- Develop and assess the effectiveness of school-based screening programs to identify children with asthma.
- Develop and assess a monitoring system to better define the prevalence of asthma in specific populations.

What can you do?

- ADVOCATE for children with asthma!
- Support placing nurses in every school.
- Integrate the delivery of care and education about asthma with the child's daily life at home, at school, and in the community.
- Support laws and regulations for access to asthma medications in school.
- Encourage patients/parents to join patient education organizations and support groups.
- Include the child and the family in the decision-making process about care and the way treatment is delivered.
- Support health care initiatives that encourage appropriate care for persons with chronic illnesses.
- Support health care initiatives that recognize the difference between health care for children and for adults.



References

Amirav I, Goren A, Kravitz RM, Pawlowski NA. Physician-targeted program on inhaled therapy for childhood asthma. J Allergy Clin Immunol 1995; 95:818-823.

ATS Update: Future directions for research on diseases of the lung. Am J Respir Crit Care Med 1998; 158:320-334.

Baldaia L. An educational approach to successful management of childhood asthma as a chronic illness. J Ped Nurs 1996; 11:335-336.

Becker A, McGhan S, Dolovich J, Proudlock M, Mitchell I. Essential ingredients for an ideal education program for children with asthma and their families. Chest 1994; 106(4):S231-S234.

Bernard-Bonnin AC, Stachenko S, Bonin D, Charette C, Rousseau E. Self-management teaching programs and morbidity of pediatric asthma: a meta-analysis. J Allergy Clin Immunol 1995; 96(1):34-41.

Boulet LP, Chapman KR. Asthma education: the Canadian experience. Chest 1994; 106(4):S206-S210.

Brazil K, McLean L, Abbey D, Musselman C. The influence of health education on family management of childhood asthma. Patient Education and Counseling 1997; 30:107-118.

Bryce FP, Neville RG, Crombie IK, Clark RA, McKenzie P. Controlled trial of an audit facilitator in diagnosis and treatment of childhood asthma in general practice. Brit Med J 1995; 310:838-842.

Baucher H, Homer C, Salem-Schatz SR. The status of pediatric practice guidelines. Pediatrics 1997; 99:876-881.

Chande VT, Exum V. Follow-up phone calls after an emergency department visit. Pediatrics 1994; 93(3):513-514.

Christiansen SC, Martin SB, Schleicher NC, et al. Evaluation of a school-based asthma education program for inner-city children. J Allergy Clin Immunol 1997; 100:613-617.

Clark NM, Feldman CH, Evans D, et al. The impact of health education on frequency and cost of health care use by low income children with asthma. J Allergy Clin Immunol 1986; 78:108-115.

Cote J, Golding J, Barnes G, Boulet LP. Educating the educators: how to improve teaching about asthma. Chest 1994; 106(4):S242-S247.

Creer TL, Backial M, Burns KL, et al. Living with asthma. Genesis and development of a self-management program for childhood asthma. J Asthma 1988; 25(6):335-362.

D'Souza W, Crane J, Burgess C, et al. Community-based asthma care: trial of a "credit card" asthma self-management plan. Eur Respir J 1994; 7:1260-1265.

Evans D, Mellins R, Lobach K, et al. Improving care for minority children with asthma: professional education in public health clinics. Pediatrics 1997; 99(2):157-164.

Evans D, Clark NM, Feldman CH, et al. A school health education program for children with asthma aged 8-11 years. Health Education Quarterly 1987; 14(3):267-279.

Feldman CH, Clark NM, Evans D. The role of health education in medical management of asthma. Some program applications. Clin Rev Allergy 1987; 5:195-205.

Fisher EB, Sussman LK, Arfken C, et al. Targeting high-risk groups. Neighborhood organization for pediatric asthma management in the neighborhood asthma coalition. Chest 1994; 106(4):S248-S259.

Fritz G, Spirito A, Yeung A, Klein R, Freedman E. A pictorial visual analog scale for rating severity of childhood asthma episodes. J Asthma 1994; 31(6):473-478.

Fritz GK, Yeung A, Wamboldt MZ, et al. Conceptual and methodologic issues in quantifying perceptual accuracy in childhood asthma. J Ped Psychol 1996; 2:153-173.

Gemson DH, Ashford AR, Dickey LL, et al. Putting prevention into practice: impact of a multifaceted physician education program on preventive services in the inner city. Arch Intern Med 1995; 155:2210-2216.

Greco PJ, Eisenberg JM. Changing physicians' practices. N Engl J Med 1993; 329(17):1271-1273.

Greineder DK, Loane KC, Parks P. Reduction in resource utilization by an asthma outreach program. Arch Pediatr Adolesc Med 1995; 149:415-420.

Henry RL, Hazell J, Halliday JA. Two-hour seminar improves knowledge about childhood asthma in school staff. J Ped Child Health 1994; 30:403-405.

Hindi-Alexander MC, Cropp GJA. Evaluation of a family asthma program. J Allergy Clin Immunol 1984; 74;505-510.

Hughes DM, McLeod M, Garner B, Goldbloom RB. Controlled trial of a home and ambulatory program for asthmatic children. Pediatrics 1991; 87:54-61.

Horned SD. A family-care approach for managing childhood asthma. J Amer Acad Nurse Pract 1995; 7:221-227.

Kattan M, Mitchell H, Eggleston P, et al. Characteristics of inner-city children with asthma: The National Cooperative Inner-City Asthma Study. Ped Pulmonol 1997; 24:253-262

Klinnert MD, McQuaid EL, Gavin LA. Assessing the family asthma management system. J Asthma 1997; 34(1):77-88.

Klinnert MD. (guest editorial). Psychosocial influences on asthma among inner-city children. Ped Pulmonol 1997; 24:234-236.

Kropfelder L, Winkelstein M. A case management approach to pediatric asthma. Pediactric Nursing 1996; 22(4):291-295.

Lewis CE, Rachelefsky G, Lewis MA, de la Sota A, Kaplan M. A randomized trial of A.C.T. (Asthma Care Training) for kids. Pediatrics 1984; 74:478-486.

Lieu TA, Quesenberry CP, Capra AM, et al. Outpatient management practices associated with reduced risk of pediatric asthma hospitalization and emergency department visits. Pediatrics 1997; 100(3):334-341.

Lozano P, Fishman P, VonKorff M, Hecht J. Health care utilization and cost among children with asthma who were enrolled in a health maintenance organization. Pediatrics 1997; 99:757-764.

Madge P, McColl J, Paton J. Impact of a nurse-led home management training programme in children admitted to hospital with acute asthma: a randomised controlled study. Thorax 1997; 52:223-228.

Miller BD, Wood BL. Childhood asthma in interaction with family, school, and peer systems: a development model for primary care. J Asthma 1991; 28(6):405-414.

Mitchell H, Senturia Y, Gergen P, et al. Design and methods of the National Cooperative Inner-City Asthma Study. Ped Pulmonol 1997; 24:237-252.

Newhouse MT. Hospital-based asthma education. Achieving the goals and evaluating the outcome. Chest 1994; 106(4):S237-S241.

Osman L, Siverman M. Measuring quality of life for young children with asthma and their families. Eur Respir J 1996; 9:S35-S41.

Parker SR, Mellins RB, Sogn DD. Asthma education: a national strategy. Am Rev Dis 1989; 140:848-853.

Swanson MN, Thompson PE. Managing asthma triggers in school. Ped Nurs 1994; 20(2):181-184.

Taggart VS, Zuckerman AE, Sly RM, et al. You can control asthma: evaluation of an asthma education program for hospitalized inner-city children. Patient Education Counsel 1991; 17:35-47.

Thaper A. Educating asthmatic patients in primary care: a pilot study of small group education. Fam Pract 1994; 11(1):39-43.

Thoresen CE, Kirmil-Gray K. Self-management psychology and the treatment of childhood asthma. J Allergy Clin Immunol 1983; 72:596-606.

Teresa T, Dick P, Feldman W, Hernandez R. A cohort study on childhood asthma admissions and readmissions. Pediatrics 1996; 98(2):191-195.

Toelle BG, Peat JK, Salome CM, Mellis CM, Bauman AE, Woolcock AJ. Evaluation of a community-based asthma management program in a population sample of school children. Med J Aust 1993; 158:742:746.

Trautner C, Richter B, Berger M. Cost-effectiveness of a structured treatment and teaching programme on asthma. Eur Respir J 1993; 6:1485-1491.

van Essen-Zandvliet E.E.M. Long-term intervention in childhood asthma: The Dutch study results. Am Rev Respir Dis 1993; 148:1252-1257.

Wade S, Weil C, Holden G, et al. Psychosocial characteristics of inner-city children with asthma: a description of the NCICAS psychosocial protocol. Ped Pulmonol 1997; 24:263-276.

Weinstein AG. Clinical management strategies to maintain drug compliance in asthmatic children. Ann Allergy Asthma Immunol 1995; 74:304-310.

Wilson SR, Starr-Schneidkraut N. State of the art in asthma education: the US experience. Chest 1994; 106(4):S197-S205.

Zeiger RS, Heller S, Mellon MH, Wald J, Falkoff R, Schatz M. Facilitated referral to asthma specialist reduces relapses in asthma emergency room visits. J Allergy Clin Immunol 1991; 87:1160-1168.

Doctor’s Notes:

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